

GAO Highlights

Highlights of [GAO-14-667](#), a report to congressional requesters

Why GAO Did This Study

Technology advancements such as horizontal drilling and hydraulic fracturing (pumping water, sand, and chemicals into wells to fracture underground rock formations and allow oil or gas to flow) have allowed companies to extract oil and gas from shale and other tight geological formations. As a result, oil and gas production has increased more than fivefold from 2007 through 2012. DOT oversees the safety of the U.S. transportation system.

GAO was asked to review oil and gas transportation infrastructure issues. This report examines (1) overall challenges that increased oil and gas production may pose for transportation infrastructure, (2) specific pipeline safety risks and how DOT is addressing them, and (3) specific rail safety risks and how DOT is addressing them. GAO analyzed federal transportation infrastructure and safety data generally from 2008 to 2012 or 2013 (as available), reviewed documents, and interviewed agency, industry, and safety stakeholders, as well as state and industry officials in states with large-scale shale oil and gas development.

What GAO Recommends

DOT should move forward with a proposed rulemaking to address safety risks—including emergency response planning—from newer gathering pipelines. DOT generally concurred with the recommendation and stated that it is developing a rulemaking to revise its pipeline safety regulations.

View [GAO-14-667](#). For more information, contact Susan Fleming at (202) 512-2834 or flemings@gao.gov or Frank Rusco at (202) 512-3841 or ruscof@gao.gov.

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OIL AND GAS TRANSPORTATION

Department of Transportation Is Taking Actions to Address Rail Safety, but Additional Actions Are Needed to Improve Pipeline Safety

What GAO Found

Increased oil and gas production presents challenges for transportation infrastructure because some of this increase is in areas with limited transportation linkages. For example, insufficient pipeline capacity to transport crude oil has resulted in the increased use of rail, truck, and barge to move oil to refineries, according to government and industry studies and publications GAO reviewed. These transportation limitations and related effects could pose environmental risks and have economic implications. For instance, natural gas produced as a byproduct of oil is burned—a process called flaring—by operators due, in part, to insufficient pipelines in production areas. In a 2012 report, GAO found that flaring poses a risk to air quality as it emits carbon dioxide, a greenhouse gas linked to climate change, and other air pollutants. In addition, flaring results in the loss of a valuable resource and royalty revenue.

Due to the increased oil and gas production, construction of larger, higher-pressure gathering pipelines (pipelines that transport products to processing facilities and other long-distance pipelines) has increased. However, these pipelines, if located in rural areas, are generally not subject to U.S. Department of Transportation (DOT) safety regulations that apply to other pipelines, including emergency response requirements. Historically, gathering pipelines were smaller and operated at lower pressure and thus posed less risk than long-distance pipelines. But the recent increase in their size and pressure raises safety concerns because they could affect a greater area in the event of an incident. In 2011, DOT began a regulatory proceeding to address the safety risks of gathering pipelines, but it has not proposed new regulations. Although states may regulate gathering pipelines, an association of state pipeline regulators' report on state pipeline oversight shows that most states do not currently regulate gathering pipelines in rural areas.

Crude oil carloads moved by rail in 2012 increased by 24 times over that moved in 2008. Such an increase raises specific concerns about testing and packaging of crude oil, use of unit trains (trains of about 80 to 120 crude oil cars), and emergency response preparedness. Crude oil shippers are required to identify their product's hazardous properties, including flammability, before packaging the oil in an authorized tank car. DOT has issued safety alerts on the importance of proper testing and packaging of crude oil. However, industry stakeholders said that DOT's guidance on this issue is vague and that clarity about the type and frequency of testing is needed. In July 2014, DOT proposed new regulations for crude oil shippers to develop a product-testing program subject to DOT's review. Additionally, unit trains, which can carry 3 million or more gallons of crude oil and travel to various locations through the country, are not covered under DOT's comprehensive emergency response planning requirements for transporting crude oil by rail because the requirements currently only apply to individual tank cars and not unit trains. This raises concerns about the adequacy of emergency response preparedness, especially in rural areas where there may be fewer resources to respond to a serious incident. Also in July 2014, DOT sought public comment on potential options for addressing this gap in emergency response planning requirements for transporting crude oil by rail.